

LVH-C Series Intumescent Fire
Dampers

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LVH-C Series Intumescent Fire Dampers

Intumescent Fire Dampers Fully Insulating Ceiling Mounted

Systems available with integrity, insulation
and incipient fire ratings



General

The Lorient LVH-C series (Ceiling Mounted) intumescent fire dampers allow for air transfer penetrations in fire rated Plasterboard ceilings. Special systems can be provided for integrity, insulation and incipient fire ratings. Their slimline design and absence of moving parts allow major space savings when compared to conventional 'rat trap' type mechanical ceiling fire dampers.

Lorient LVH-C series intumescent fire dampers have been fire tested to AS1530.4 and comply with the Building Code of Australia, specification C3.15 and with the requirements of AS/NZS1668.1.

This system is ideal for retrofit applications during fire safety upgrades.

KEY FEATURES

- New and innovative design
- Space savings compared to 'rat trap' type designs
- Suitable for use behind supply air diffusers and return air grilles
- Slim line design, only 44 mm thick
- Lightweight
- Moisture resistant
- No moving parts
- Maintenance cost savings (no Level 2 operational checks as per AS1851.6)

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Description

The Lorient LVH-C series intumescent fire damper is designed to seal openings in fire rated plasterboard ceilings where air supply or return ducts are required.

These intumescent fire dampers incorporate a number of parallel intumescent slats, reinforced with impact resistant steel edging, housed in a rigid steel frame. The LVH-C intumescent fire damper may be built in or retrofit into standard plenum box and located directly behind an air grille or diffuser.

Once the intumescent fire damper is located into the metal duct any gaps are simply fire stopped using Lorient intumescent mastic.

Function

There are no moving parts in a Lorient intumescent fire damper. Instead, fixed, evenly spaced parallel slats containing intumescent material swell when exposed to heat. A sudden increase in temperature resulting from the presence of hot flames or gases will cause the slats to swell to many times their original thickness, fusing together to provide an effective barrier to the passage of fire and hot smoke. Lorient LVH series intumescent fire dampers also provide a high degree of insulation from radiant heat, protecting any nearby combustible materials from ignition.

Reliability

Lorient LVH series intumescent fire dampers are trouble free in operation which results in increased system reliability. The absence of moving parts alleviates concerns relating to clearances, corrosion and dust build up which may render a conventional mechanical type damper inoperative. Extensive fire testing has shown that the orientation does not effect fire performance and the symmetrical construction allows bi-directional air flow.

Installation Cost Savings

Hazardous fibrous packing and special clearances are not required for the LVH series fire dampers. Any gaps between the damper and opening are sealed with Lorient intumescent mastic.

No moving parts and bi-directional air flow means that the LVH series fire damper can be installed in any orientation. Once installed there are no operational checks needed. These benefits provided for quicker, trouble free installation and commissioning.

Maintenance

Maintenance routines are usually conducted in accordance with AS1851.6. The latest version of the standard has made significant concessions for Level 2 type inspections on intumescent type fire dampers, whereby exclusion of operational checks has been allowed due to the absence of any moving parts.

Design Specification

“All fire dampers shall be Lorient LVH-C series intumescent fire dampers. The installation shall be System XX and must comply with the requirements AS/NZS1668.1 and the air leakage test of AS1682.1.

Equivalent fire dampers must allow bi-directional airflow and have no moving parts.”

Sizing

Single module:

	RECTANGULAR
min.	100 x100 mm
max.	600 x 600 mm

Size increment: made to order.

Note

1. When ordering, specify exact size required.
2. No extra allowance for thermal expansion is needed as operation of intumescent damper is not impeded by distortion.

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Construction

Damper casing:

None.

Damper blades:

None.

Intumescent slats:

Evenly spaced, fixed parallel slats, with a 20 mm pitch.

Retaining angles:

1mm right angle brackets.

Mounting hardware:

Self drilling screws.

Bearings/linkages:

None.

Fusible link:

None.

Technical Details

Operation:

A sudden increase in temperature resulting from the presence of flames or hot gases causes the intumescent slats to swell to many times their original thickness, fusing together to provide a solid barrier to the passage of fire and hot smoke.

Damper closing time:

Lorient LVH series intumescent fire dampers are fully closed before 120 seconds as required by AS/NZS 1668.1.

Maximum air velocity:

As there are no moving parts in the Lorient LVH series intumescent fire dampers, air velocity will not impede their operation. In terms of AS1682.2 clause 5.1.4 there is no limiting velocity for their effective operation.

Air-flow orientation:

Bi-directional air flow allows the Lorient LVH series fire damper assemblies to be installed in any orientation.

Pressure drop:

Although Lorient LVH series intumescent fire dampers have slats in the air flow, their aerodynamic design and pitch result in minimal pressure drops as shown by independent testing. The method of using free area to calculate pressure drops yield very conservative results. Pressure drop data can be found in Section 9 of this catalogue.

Fire testing:

LVH series fire dampers have been fire tested to AS1530.4 and approved for use in most wall, floor and ceiling types. Approval numbers and maximum fire ratings appropriate to the system are referenced on each installation instruction.

Smoke Leakage testing:

LVH-C series fire dampers provide an almost hermetic seal when closed. Extensive air/smoke leakage tests have been successfully conducted in accordance with AS1682.1 clause 5.3 after fire exposure and to ISO10294-1 during fire exposure.

Noise testing:

LVH-C series fire dampers have been tested by Noise Control & Research Laboratories for dB noise levels at various design velocities. Results are available on request.

Dust & Lint testing:

Extensive testing has been performed at Mechlab, Australia to conclude that dust and lint will not accumulate in the LVH series damper in the most onerous environments. Tests were performed at 90% relative humidity (bathroom exhaust scenario) for various dust and lint classifications at many design velocities. The full report is available on request.

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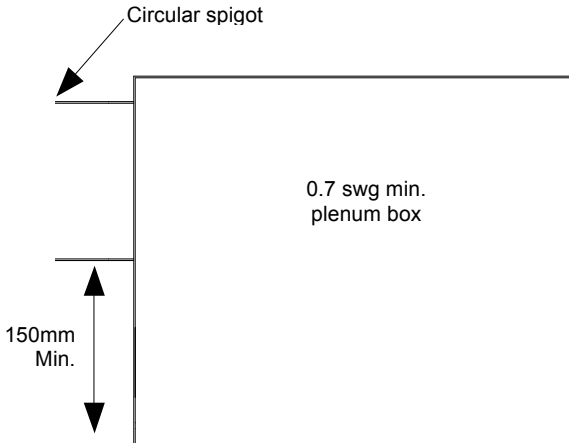
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LVH-C Series Intumescent Fire Dampers

Ceiling Mounted–60 min System Integrity & Insulation (Incipient Rated)

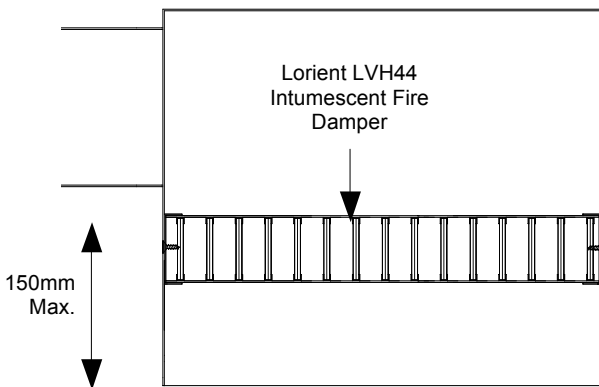
LVH-C series installation instruction

SYSTEM C1
FRL -/60/60
APPROVAL(S) WFRA-40904



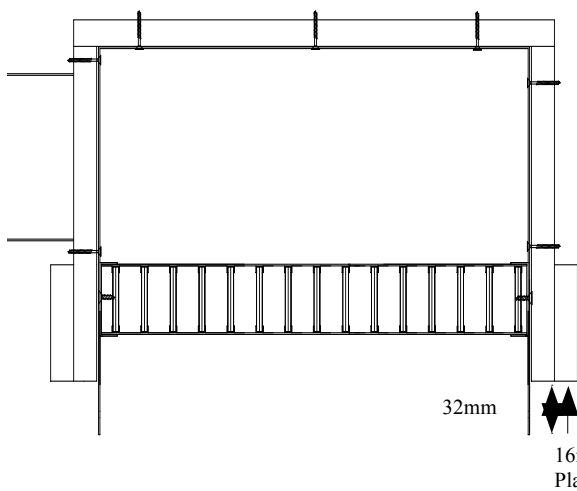
STEP 1

1. Manufacture standard plenum box (0.7 swg min.) with circular spigot a minimum height of 150mm above ceiling level.



STEP 2

2. Insert maximum size of 300mm x 300mm LVH44 damper unit into plenum box and fix in place using self drilling screws at maximum 150mm centres.



STEP 3

3. Cut one layer of 16mm fire rated plasterboard to size and clad the plenum box using plasterboard screws, leaving a 32mm gap at the bottom for 2 layers of fire rated plasterboard which make up the ceiling to butt up to. Fix an additional layer of 16mm fire rated plasterboard packing around the perimeter of plenum box.

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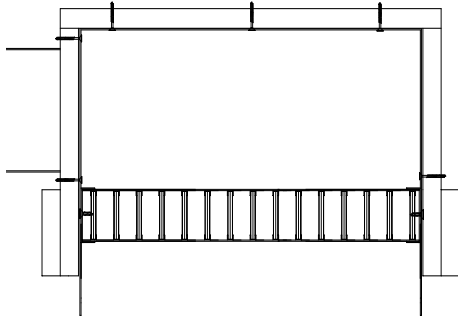
Ceiling Mounted—60 min System Integrity & Insulation (Incipient Rated)

LVH-C series installation instruction

SYSTEM C1

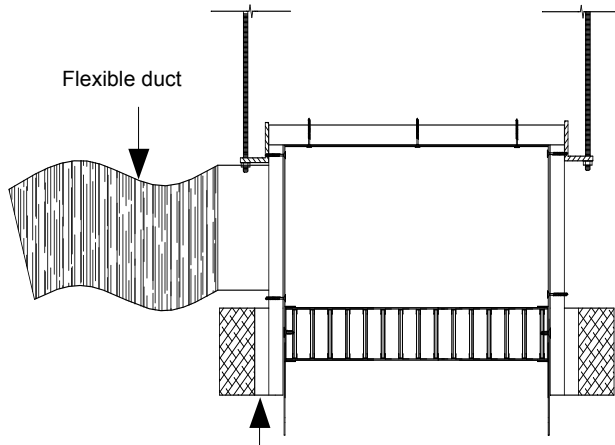
FRL
-/60/60

APPROVAL(S)
WFRA-40904



STEP 4

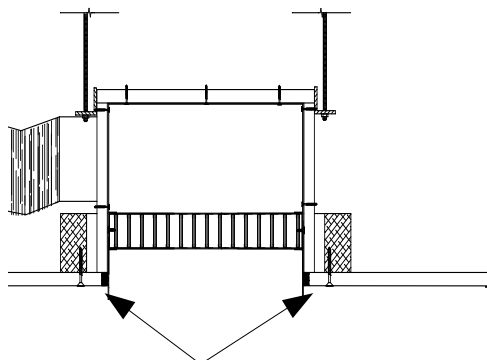
4. Securely fix plenum box or duct dropper to the slab, floor/ceiling or roof above, independently from the suspended ceiling. (Example : plenum box shown suspended using threaded rod and nut which is fixed to the plenum box using angles.)



Perimeter frame using timber or steel stud installed as per plasterboard manufacturer's ceiling instructions.

STEP 5

5. Install perimeter frame with timber or steel stud around the plenum box . Connect flexible duct.



8mm nominal gap for Lorient intumescent mastic

STEP 6

6. Install first layer of 16mm fire rated plasterboard ceiling. Leaving an 8mm nom. gap for a bead of Lorient Intumescent mastic. Ensuring a perimeter frame with timber or steel stud around the plenum box incorporating an additional layer of 16mm fire rated plasterboard packing.

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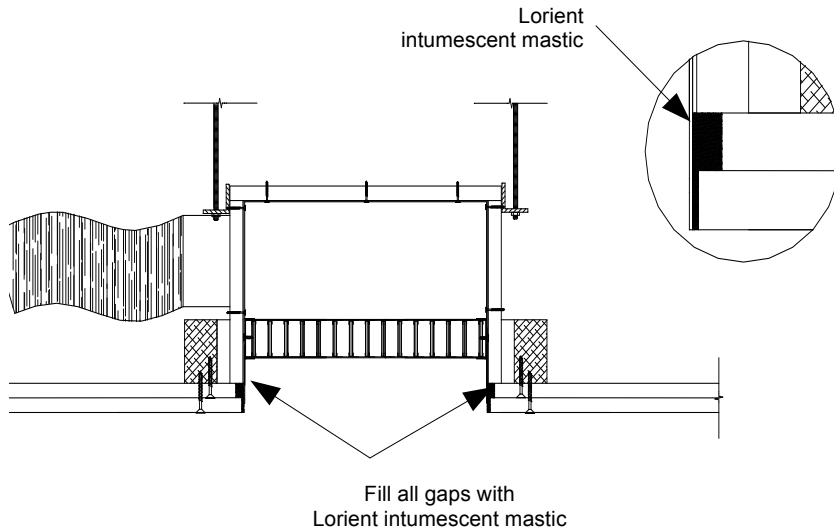
Ceiling Mounted-60 min System Integrity & Insulation (Incipient Rated)

LVH-C series installation instruction

SYSTEM C1

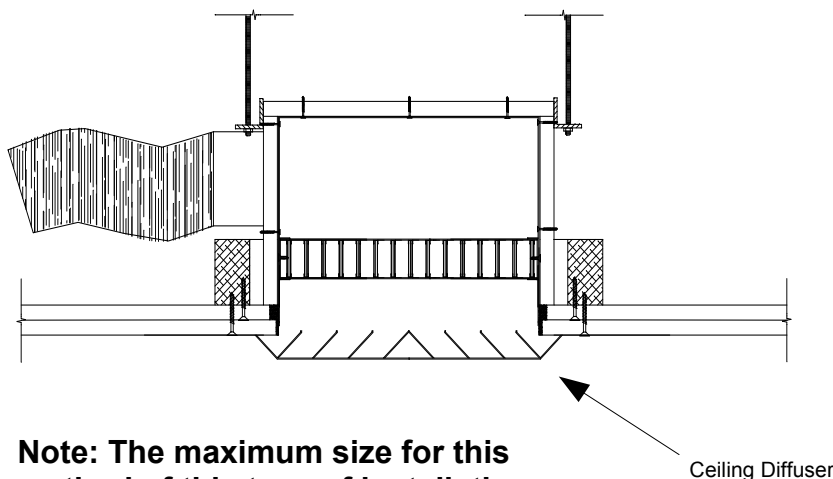
FRL
-/60/60

APPROVAL(S)
WFRA-40904



STEP 7

7. Install second layer of 16mm fire rated plasterboard around plenum box. Fill any gaps with Lorient intumescent mastic. Ensure fire rated plasterboard is installed in accordance with manufacturers instructions.



STEP 8

8. Insert ceiling diffuser into plenum box and fix in place.

Note: The maximum size for this method of this type of installation is 600 x 600

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Ceiling Mounted—60 min System Integrity & Insulation (Incipient Rated)

Nom. Neck Metric	Nom. Neck Imperial	Price (EF)	Price (ER)	Price (RA)	Price (B4)
150 x 150	6 x 6				
200 x 200	8 x 8				
225 x 225	9 x 9				
250 x 250	10 x 10				
300 x 300	12 x 12				
350 x 350	14 x 14				
375 x 375	15 x 15				
400 x 400	16 x 16				
450 x 450	18 x 18				
600 x 400	24 x 16				
700 x 400	28 x 16				
750 x 400	30 x 16				

EF = EGGCRATE FIXED CORE
ER = EGGCRATE REMOVABLE CORE
RA = RETURN AIR GRILLE
B4 = BEVELLED EDGE 4-WAY BLOW